

Water colour in north-west Madagascar

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[2D Layerstack](#)

Fig. 1 - S2 (18.02.2018) - 4,3,2 natural colour - Beaches between Bombetoka Bay & Mahajamba Bay on the north-west coast of Madagascar. [2D view](#)



Fig. 2 - West to east: Marambitsy Bay, Mahavavy river, Ampasindava Bay & Betsiboka river as it colours Bombetoka Bay in red. [2D view](#)



While "clear water" absorbs an increasing proportion of sunlight as its depth increases, the phenomenon is different for water coloured by other components. USGS [distinguishes](#) two categories: "*dissolved and suspended components*".

Fig. 3 - Mahajamba & Sofia red rivers meet cyan rivers as they join in Mahajamba Bay. At north-east, Narinda bay is coloured blue & cyan. [2D view](#)



"An example of dissolved substances is tannin, which is caused by organic matter coming from leaves, roots, and plant remains. An example would be the cup of hot tea your grandmother has in the afternoon."

Fig. 4 - Zoom on lake Kinkony, a Ramsar site and nearby lakes near the mouth of Mahavavy river

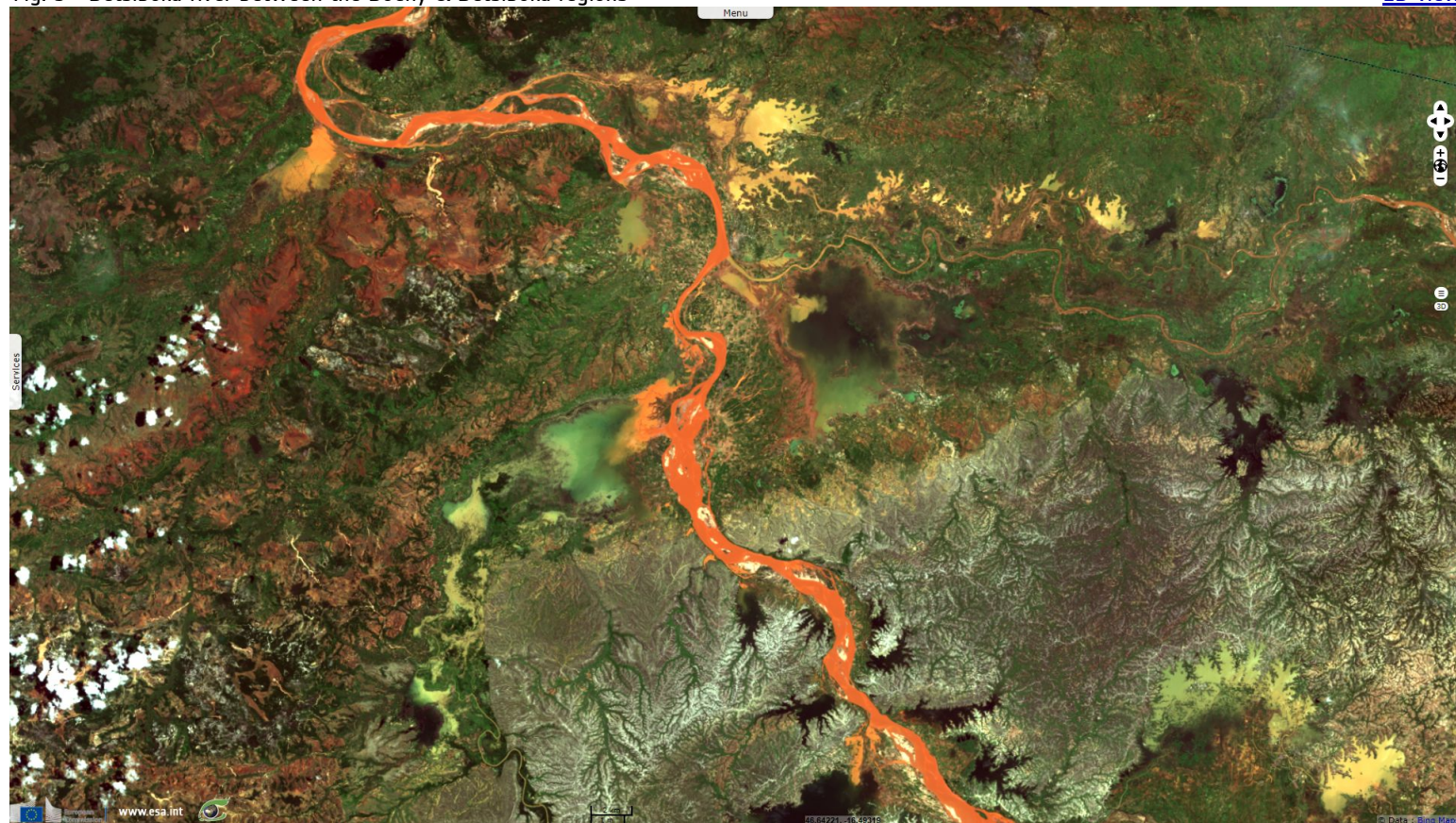
[2D view](#) [3D view](#)



Then USGS [details](#) the role of suspended components: "*Most of the color in water you see around you comes from suspended material. Algae and suspended sediment particles are very common particulate matter that cause natural waters to become colored. Even though the muddy water below would not be appealing to swim in, in a way that water has less color than the water containing dissolved tannins. That is because suspended matter can be filtered out of even very dirty-looking water. If the water is put into a glass and left to settle for a number of days, most of the material will settle to the bottom (this method is used in sewage-treatment facilities) and the water will become clearer and have less color. So, if an industry wanted needed some color-free water for an industrial process, they would probably rather start with the sediment-laden water, rather than the tannin colored water.*"

Fig. 5 - Betsiboka river between the Boeny & Betsiboka regions

[2D view](#)



"Suspended material in water bodies may be a result of natural causes and/or human activity. Transparent water with a low accumulation of dissolved materials appears blue. Dissolved organic matter, such as humus, peat or decaying plant matter, can produce a yellow or brown color. Some algae or dinoflagellates produce reddish or deep yellow waters. Water rich in phytoplankton and other algae usually appears green. Soil runoff produces a variety of yellow, red, brown and gray colors."

Fig. 6 - Detail showing some of the multicoloured lakes joining Betsiboka river.

[2D view](#)



Finally, USGS [explains](#) the effects on wildlife of these coloured waters : "Highly colored water has significant effects on aquatic plants and algal growth. Light is very critical for the growth of aquatic plants and colored water can limit the penetration of light. Thus a highly colored body of water could not sustain aquatic life which could lead to the long term impairment of the ecosystem. Very high algal growth that stays suspended in a water body can almost totally block light penetration as well as use up the dissolved oxygen in the water body, causing a eutrophic condition that can drastically reduce all life in the water body."

Fig. 7 - Multiple changes between yellow and emerald and then to orange as different watercourses merge.

[2D view](#)

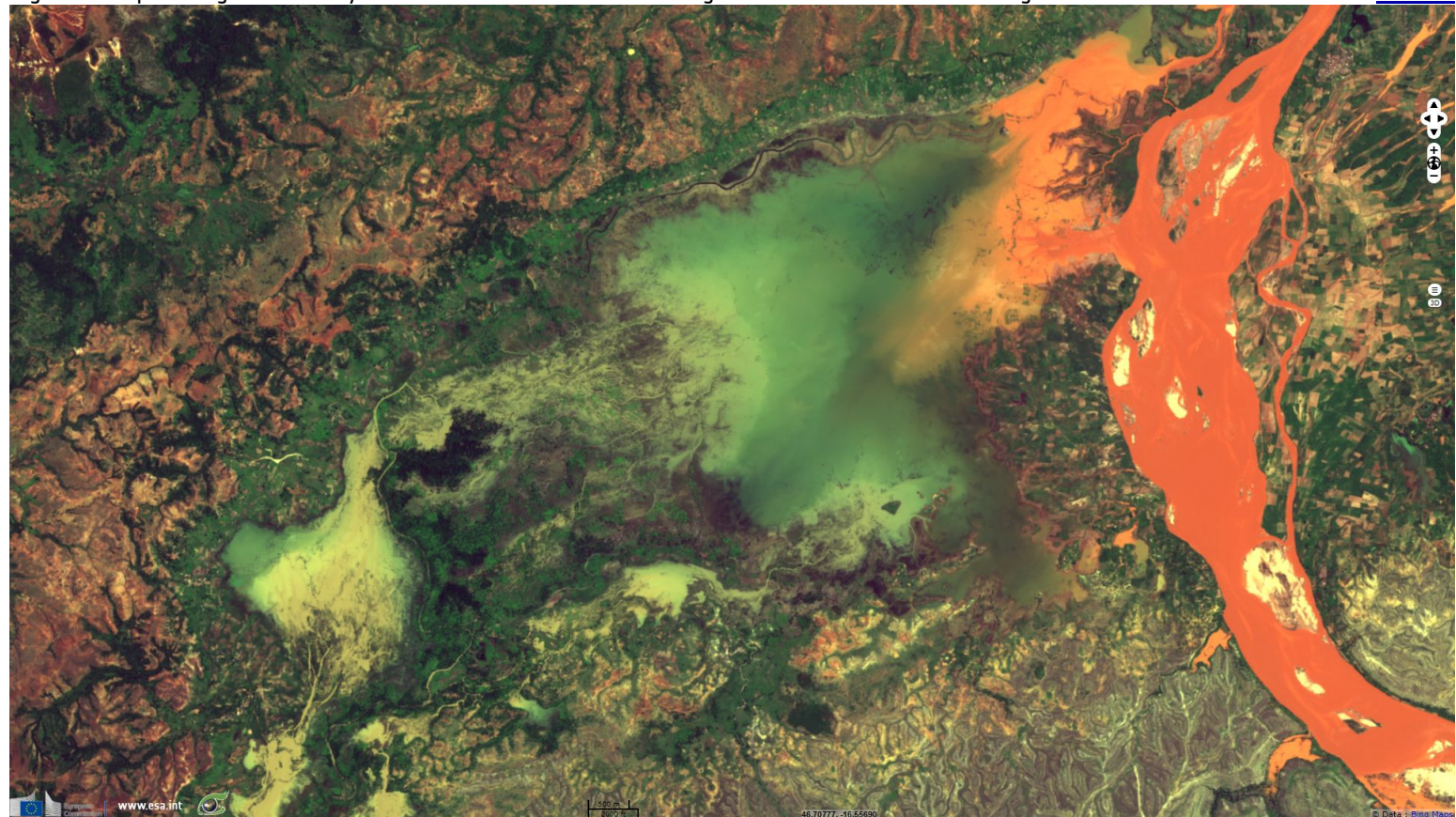
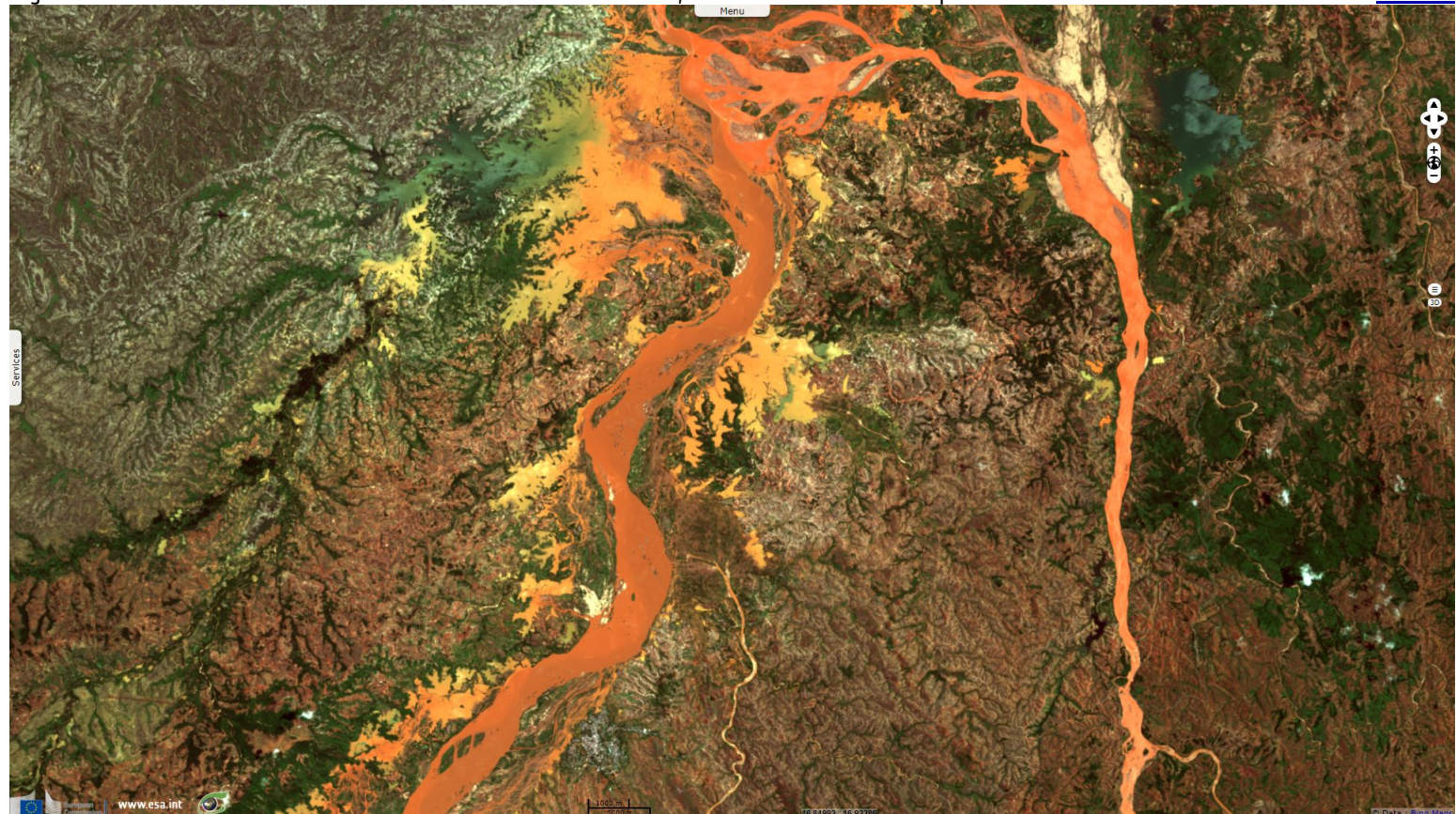














Fig. 8 - Rainbow hue variations in lakes colour around Betsiboka river, at the limit of the central plateau.

[2D view](#)



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